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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,630	04/14/2004	Michel Armand	213411.00032	4612
27160 7590 12/08/2009 KATTEN MUCHIN ROSENMAN LLP (C/O PATENT ADMINISTRATOR) 2900 K STREET NW, SUITE 200 WASHINGTON, DC 20007-5118			EXAMINER CHOI, LING SIU	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 12/08/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/823,630

**Applicant(s)**

ARMAND ET AL.

**Examiner**

Ling-Siu Choi

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2, 3 and 5-16 is/are pending in the application.
- 4a) Of the above claim(s) 5-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/361,962.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The request filed on 07/28/2008 for a Request of Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No.10823,630 is acceptable and a RCE has been established. An action on the RCE follows.
2. This Office Action is in response to the Amendment filed 09/14/2009. Claims 1 and 4 were cancelled. Claims 2-3 and 5-16 are now pending, wherein claims 5-16 have been withdrawn from further consideration due to the Restriction/Election requirement.

***Claim Objections***

3. Claims 2-3 are objected to because of the following informalities: (A) Claim 2, Formula (XIV), the C=O<sup>-</sup> group is suggested to be changed to C=O and (B) Claim 2, lines 1-2, "and wherein" is suggested to be changed to --, wherein--.

Appropriate correction is required.

***Allowable Subject Matter***

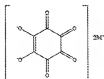
4. Claims 2-3 are allowable over the closest references: Shionogi & Co. Ltd. (GB 1,115,335), Speck (US 5,637,452), and Fleischer (US 5,512,381).

Art Unit: 1796

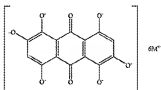
## Summary of Claim 2:

A redox compound having at least one state of oxidation state and wherein said compound is selected from the group consisting of:

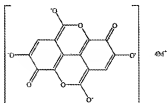
a rhodizonic acid salt represented by formula (I):



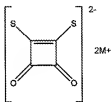
a rufigallic acid salt represented by formula (II):



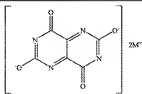
an elagic acid salt represented by formula (III):



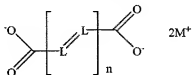
a salt of 1,2-dimercaptocyclobutenedione (dithiosquarique) acid represented by formula (IV):



a salt of 1,5 dihydropyrimido[5,4d]pyrimidine 2,4,6,8(3H,7H)tetrone represented by formula (V):



a salt of a dicarboxylic acid comprising groups linked with conjugated segments corresponding to formula (VI):



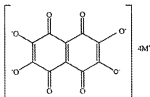
wherein L is independently CR<sup>5</sup>, N or C-CN, and

wherein R<sup>5</sup> is hydrogen, C<sub>1-12</sub> alkyl, C<sub>2-12</sub> alkenyl, C<sub>6-10</sub> aryl,

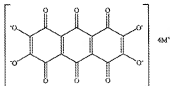
C<sub>6-10</sub> aryl C<sub>1-12</sub> alkyl, C<sub>1-12</sub> alkyl C<sub>6-10</sub> aryl optionally substituted with one or more oxa, aza or thia of from 1 to 30 carbon atoms, and

wherein two R<sup>5</sup> can form an aliphatic cycle, an aromatic cycle or a heterocycle containing from 4 to 8 carbon atoms when both L are CR<sup>5</sup>;

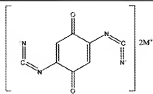
a salt of formula (VII):



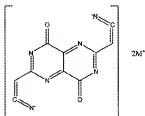
a salt of formula (VIII):



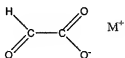
a salt of formula (IX):



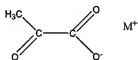
a salt of formula (X):



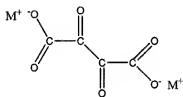
a salt of formula (XI) :



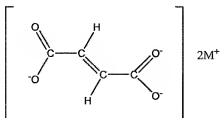
a salt of formula (XII):



a salt of formula (XIII):

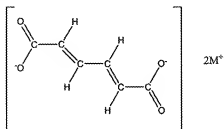


a salt of formula (XIV):

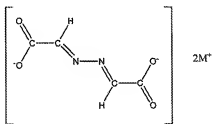


Art Unit: 1796

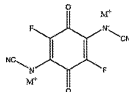
a salt of formula (XV) :



a salt of formula (XVI):



a salt of formula (XVII)



oxidation compounds of aforesaid salts of formulae (I) to (XVII);

being understood that:

in aforesaid formulae (I) to (XVII) $M^+$  represents an alkaline metallic cation, an

alkaline-earth cation, a transition metal cation, a rare earth cation, an organometallic cation, an organic cation of the "onium" type, a repetitive unit of a cationic oxidized conjugated polymer, or a monomeric or polymeric cation optionally having a redox character; and

$M^+$  satisfies with formula  $n/pM^{p+}$  where  $n$  is the above mentioned number of cation atoms or molecules given for aforesaid salts and  $p$  is the valency of the above mentioned cation atoms or molecules;

in aforesaid formulae (I) to (XVII)

the oxygen atoms with a double bond can be replaced with a group  $-\text{NCN}$  or  $-\text{C}(\text{CN})_2$  and oxygen anion  $\text{O}^-$  can be replaced with a group  $\text{N-CN}$  or  $\text{C}-(\text{CN})_2$ ; and wherein the compound is used as a negative electrode component in electrochemical generators when redox couples are comprised between 0.1 and 2V vs.  $\text{Li}^+/\text{Li}^\circ$ ; or as a positive electrode component in electrochemical generators or as an active or passive electrode in electrochromic devices when redox couples are comprised between 2 and 3.7V vs.  $\text{Li}^+/\text{Li}^\circ$ .

Shionogi & Co. Ltd. discloses potassium rhodizonate, which is used in an antidiabetic agent (col. 1, lines 15-26). It is noted that dipotassium rhodizonate reads on the claimed compound. It is noted that Shionogi & Co. Ltd. is silent on the redox properties of these polymers. In view of the compound being identical to the claimed compound, the compound will inherit such redox properties. Thus, Shionogi & Co. Ltd. do not teach or fairly suggest the claimed redox compound, wherein the compound is used as a negative electrode component in electrochemical generators when redox couples are comprised between 0.1 and 2V vs.  $\text{Li}^+/\text{Li}^\circ$ ; or as a positive electrode component in electrochemical generators or as an active or passive electrode in electrochromic devices when redox couples are comprised between 2 and 3.7V vs.  $\text{Li}^+/\text{Li}^\circ$ .

Speck discloses an aqueous reagent comprising elagic acid and a metal ion such as  $\text{Ni}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Cu}^+$ , or  $\text{Cu}^{2+}$ , which reads on the metal salt of elagic acid (abstract). It is noted that Speck is silent on the redox properties of this compound. In view of this compound being identical to the claimed compound, this compound will inherit such redox properties. Thus, Speck do not teach or fairly suggest the claimed



redox compound, wherein the compound is used as a negative electrode component in electrochemical generators when redox couples are comprised between 0.1 and 2V vs.  $\text{Li}^+/\text{Li}^\circ$ ; or as a positive electrode component in electrochemical generators or as an active or passive electrode in electrochromic devices when redox couples are comprised between 2 and 3.7V vs.  $\text{Li}^+/\text{Li}^\circ$ .

Fleischer discloses a battery comprising an anode, a cathode, and a solid state electrolyte between the anode and the cathode, wherein the anode is composed of a material containing a proton-donating aromatic compound, the proton-donating aromatic compound being rhodizonic acid (claim 12). However, Fleischer do not teach or fairly suggest the claimed redox compound [rhodizonic acid salt], wherein the compound is used as a negative electrode component in electrochemical generators when redox couples are comprised between 0.1 and 2V vs.  $\text{Li}^+/\text{Li}^\circ$ ; or as a positive electrode component in electrochemical generators or as an active or passive electrode in electrochromic devices when redox couples are comprised between 2 and 3.7V vs.  $\text{Li}^+/\text{Li}^\circ$ .

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on 571-272-1114.

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

December 5, 2009

